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LIVER FUNCTION TEST : A BIOCHEMICAL MARKER OF SEVERITY OF PIH AND IT'S OUTCOME

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ABSTRACT Pregnancy induced hypertension is associated with increased level of serum bilirubin and liver enzyme like ALT, AST , ALP & LDH. Different type of maternal complication like PPH, ARF, pulmonary edema, abruption placenta , post partam eclampsia etc. was seen more among pregnancy induced hypertensive mothers compare to normotensive controls in our study. Also IUGR, IUFD, premature birth, still born etc. was noted.

KEYWORDS : Liver Function Test, Pre-eclampsia , Eclampsia

INTRODUCTION:

Hypertensive disorders are the most medical complication occurring in 12-22% of all pregnancy [1]. It is the 2nd most common killer disease in pregnancy [2].

Abnormalities in liver function test (LFT) occur in 3% of pregnancies and preeclampsia is the most frequent cause . HELLP syndrome is a complication that occurs in 0.5-0.9% pregnancies and 10- 20% women with severe preeclampsia. It is common in third trimester. It is a triad of Hemolysis, elevated liver enzymes and low platelet count. Elevated LDH levels is an indicator of hemolysis. So by estimating liver enzymes , LDH and proteinuria should trying to assess the severity and complications of PIH.[3]

MATERIALAND METHODS

Present study was undertaken in the department of Gynaecology and obstetrics from January 2017 to June 2018. Total 100 women participated in the study among which 50 were included as normotensive controls, 22 were included as mild preclampsia, 19 were severe preeclampsia, and 9 were eclampsia. Our aim is to evaluate and compare liver function tests in PIH patients with normotensive pregnancy and correlation of maternal and fetal outcome.

Pregnant women with essential hypertension or hypertension <20 weeks gestation; diabetes mellitus, renal disease,liver disorder, thyroid disorder, epilepsy & urinary tract infection.are excluded from the study.The two groups & Sub groups would be according to age, gravida, parity, trimester,. All women would be followed until delivery and early postpartum period and babies till early neonatal period.

An informed written consent was obtained before including the antenatal mothers in the study.

RESULTS

Table1. Mean&S.DvaluesofdifferentparametersamongmildPET, severPETthereCorelations:

GROUP	Age	GA	SBP	DBP	Bilirubinmg/dl	AST(SGOT)U/L	ALT(SGPT)	ALPU/l	LDHu/l	
MildPET	Mean	20.73	34.55	148.00	99.64	1.39	68.73	62.95	233.82	565.82
	Median	19.00	35.00	148.00	96.00	1.60	72.00	70.00	220.00	562.00
	SD	5.00	2.86	5.35	7.16	0.38	18.34	16.08	40.72	47.44
SeverePET	Mean	19.74	33.58	180.32	113.89	2.20	74.53	72.16	273.16	648.42
	Median	18.00	34.00	190.00	114.00	2.00	78.00	76.00	288.00	682.00
	SD	3.83	1.80	17.09	3.80	0.60	15.13	14.74	31.63	163.09
	pValue	0.852	0.161	<0.001	<0.001	<0.001	0.047	0.020	0.001	0.038
	Significance	Not Significant	Not Significant	Significant	Significant	Significant	Significant	Significant	Significant	Significant

Table2., Mean&S.Dvaluesofdifferentparametersamongpreeclampsiaandeclampsiapatientsandtherecorelation.

GROUP		Age	GA	SBP	DBP	Bilirubinmg/dl	AST(SGOT)U/L	ALT(SGPT)	ALPU/l	LDHu/l
PET	Mean	23.21	35.79	140.37	89.56	1.24	44.88	43.03	180.79	430.31
	Median	23.00	36.00	136.00	80.00	1.00	32.00	30.00	186.00	480.00
	SD	5.05	2.61	25.35	16.66	0.65	27.04	24.91	81.05	203.72
ECLAMPSIA	Mean	20.11	32.33	165.33	108.67	1.30	51.33	49.33	262.89	611.33
	Median	19.00	32.00	148.00	102.00	0.80	32.00	30.00	280.00	500.00
	SD	3.66	2.87	26.76	10.77	0.81	26.93	26.93	30.42	158.07
	pValue	0.079	0.002	0.006	0.002	0.702	0.268	0.179	0.006	0.019
	Significance	Not Significant	Significant	Significant	Significant	Not Significant	Not Significant	Not Significant	Significant	Significant

Table 3.Maternalcomplicationamongcaseandcontrolgroup.

		GROUP		Total		
		Case	Control		pValue	Significance
Maternalcomplication	ABRUPTIOPLACENTAE	3(6)	0(0)	3(3)	0.000	Significant
	ARF	1(2)	0(0)	1(1)		

	CVA	1(2)	0(0)	1(1)		
	HELLP	1(2)	0(0)	1(1)		
	POSTPARTUMECLAMPSIA	3(6)	0(0)	3(3)		
	PPH	7(14)	1(2)	8(8)		
	PULMONARYOEDEMA	4(8)	0(0)	4(4)		
	SECONDARYSUTURE	1(2)	1(2)	2(2)		
	NONE	29(58)	48(96)	77(77)		
Total		50(100)	50(100)	100(100)		

Table--1. Shows mean value of different test parameters (bilirubin, AST, ALT , ALP & LDH) were much higher among PIH mother than normotensive control groups. In controls, mean values of bilirubin, AST , ALT , ALP & LDH were 0.82mg/dl, 23.12 u/l, 23.20u/l ,122.36u/l & 287.80u/l respectively whereas 1.68mg/dl, 67.80 u/l, 64u/l ,254u/l & 605.40u/l in PIH group . P value <0.001 in every cases. There was highly statistical significance .

In table-2 explains correlation of different test parameters (AST,ALT, and ALP& LDH) between mild PET and ever PET. There were significant changes of test parameters between mild PET and severe PET. There p value shows -bilirubin (p<0.001), AST(P=0.47), ALT(p=0.020), ALP(P=0.001), LDH(P=0.001)

Table 3- depict correlation of various parameters(bilirubin, AST , ALT , ALP & LDH) among PET and eclampsia group. There was rising trends of every test parameters in eclampsia compare to per eclampsia. But in case of bilirubin (p=0.702)), ALT(p=0.179), AST(p= 0.268) shows no statistical significance and ALP(p=0.006)and LDH(.019) shows statistical significance.

DISCUSSION

Intense spasm of hepatic arterioles produce hepatocyte damage, hemorrhage, sub-capsular hematomas, peri-portal hemorrhagic necrosis and fibrin deposits in liver resulting in elevated liver enzymes lactate dehydrogenase(LDH),serum glutamyl oxaloacetate transaminase (SGOT),serum glutamyl pyruvate transaminase (SGPT), Alkaline phosphatase(ALP) in serum. In our study shown significant elevation of serum bilirubin, SGOT,SGPT,ALP and LDH in preeclampsia and eclampsia patient compare to normotensive pregnancy as shown table-1 and figure 2-5. This findings are agree with study done [4,5].

In our study also shows significant elevation of bilirubin ,ALT,AST, ALP and LDH in sever preeclampsia patient compare to mild PET as shown in table 2 significant elevation of LDH and ALP . There was no significant variation of Bilirubin ALT,AST in eclampsia cases compared to preeclampsia cases. This finding are partly supported 6. [6]. There study shown these enzyme levels are significantly raised in PIH cases compare to normotensive controls and there is no significant variation in the increase in eclampsia cases when compared to preeclampsia cases. In our study slight difference may be due to various reasons such as sample groups, racial factor, different socio economic status etc.

Young age is well-known risk factors for developing pre-eclampsia and eclampsia. The patients with pre-eclampsia and eclampsia in our study were significantly younger compared with the normotensive women. On the other hands most of the pre eclapsia and eclampsia patients were affected in early gestational age compare to normotensive controls. Or in other words, it to be said that most of the pre eclampsia and eclamptic mothers delivered at early age of gestation. These findings are agree with study [7].

Various complications like abruptio placentae, HELLP syndrome, acute renal failure, DIC and pulmonary edema etc. were significantly higher in PIH patient compare to normotensive pregnancy. These complications were significantly higher along with severity of disease (among mild pre eclampsia, severe preeclampsia and eclampsia groups). Our Study also shown that, there was increasing trend of CCU intervention among pre eclampsia, eclampsia groups compare to normotensive mothers. Also there was increased maternal mortality among pre eclampsia, eclampsia groups compare to normotensive mothers. Our findings are consistent with other study [8] .

Pregnancy induced hypertension are well known factor for significant increasing of fetal morbidity and mortality among pere eclampsia and eclampsia patients compare to normotensive . Significantly decreasing of fetal outcome along with increasing of severity of disease processes was seen and supported by Saxena et al [9].

PIH is one of the most important risk factors, responsible for Prematurity and intrauterine growth restriction, stillborn, IUFD etc. Poor perinatal outcome among pereeclampsia and eclampsia group compare to nomotensive controle mothers was observed. It is also noted that significantly decrease the perinatal outcome according to severity of disease (i.e. mild PET sever PET and eclampsia.) DR. Neha Saxena, Amarjeet Kaur Bava, Yogeshwar Nandanwar reported [9].

Perinatal morbidity as well as mortality many fold increases among the bay of pereeclampsia and eclampsia mothers. Birth asphyxia significantly increases among the baby of pereeclampsia and eclampsia mothers . It is also noted that significantly increased the incident of birth asphyxia among mild PET sever PET and eclampsia. . Similar trends also noted in case of SNCU intervention among the baby of pereeclampsia and eclampsia mothers compare to normotensive mother [10].

CONCLUSION :

Our study shows that pregnancy induced hypertension is associated with increase in level of serum bilirubin and liver enzyme like ALT, AST , ALP & LDH indicates the cellular damage and dysfunction and can be used as a biochemical marker because it reflects the severity of the disease. High levels of serum bilirubin and liver enzyme like ALT, AST , ALP & LDH may be useful for the monitoring and correct management of preeclampsia and eclampsia to decrease maternal and fetal morbidity and mortality.

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